

USSR

ASKAROV, M. A., et al, Trudy Tbilisskogo Nauchno-Issledovatel'skogo Elektrotekhnicheskogo Instituta, No 5, 1970, pp 81-85  
(from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1970, Abstract No 7.32.972)

cylindrical lenses, the focal lines of which are mutually perpendicular. The permissible monitoring speed is up to 28 m/min.  
4 figures.

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USSR

UDC 621.382:538.652

ALEKSIDZE, M.A., BEZHANOV, V.G., VINNIKOV, I.L., SVANIDZE, L.V.

"Solution Of Some Boundary Problems During Calculation Of Resistance Of Hall Element"

Tr. In-t sistem upr. AN GruzSSR (Works Of The Institute Of Control Systems. Academy Of Sciences, Georgian SSR), 1971, 10, No 2, pp 47-57 (from RZ:Elektronika i yeye primenaniye, No 7, July 1972, Abstract No 78364)

Translation: A calculation is made of the input and output resistance of a Hall element of right-angled form, the metal current electrodes of which have an ohmic non-injecting contact with a semiconductor wafer [plastina] over all of its length, and metal Hall electrodes -- the same contact with the middle of the lateral faces of this wafer. Both pairs of contacts are realized over the total thickness of the semiconductor wafer. The results are presented in the form of graphs which makes it possible to select (from the point of view of the maximum energy index of the Hall element) the optimum ratio for the sides of the semiconductor wafer and the dimensions of the Hall electrodes. Yu.F.

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USSR

BEZHANOVA, M. M.

"Certain Aspects of the Performance of Analytic Transforms"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 60-61 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V652, by the author).

Translation: The author's point of view on the purpose of systems for machine analytic transforms is presented, and one promising method of realization of such transforms is studied.

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USSR

BEZHANOVA, M. M., KATKOV, V. L., POTTOSIN, I. V.

"Works on Analytic Transforms at the Computer Center, Siberian Affiliate, Academy of Sciences USSR"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 18-20 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V646, by the authors).

Translation: This work is a review of systems for digital computer analytic transforms studied at the Computer Center, Siberian Affiliate, Academy of Sciences, USSR. The programming systems studied include DEFPROTSESSOR, ANALITIK, KINO and PASSIV.

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1/3 020

UNCLASSIFIED

PROCESSING DATE--300CT70

TITLE--SYNAPTIC PROCESSES IN THORACIC ALPHA MOTONEURONS EVOKED BY  
SEGMENTAL AFFERENT STIMULATION -U-

AUTHOR--(03)-PREOBRAZHENSKY, N.N., GOKIN, A.P., BEZHENARU, I.S.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 3, PP 279-288

DATE PUBLISHED-----70

B

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NERVOUS SYSTEM, NEURON, BIOPOTENTIAL

CONTROL MARKINGS--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PLAY REEL/FRAME--1999/1628

STEP NO--UR/0660/70/002/003/0279/0288

CIRC ACCESSION NO--AP0123469

UNCLASSIFIED

273 020

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

CIRC ACCESSION NO--APIO123459

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ANAESTHETIZED AND DECREBATED CATS SYNAPTIC PROCESSES IN THE VARIOUS FUNCTIONAL GROUPS OF THORACIC MOTONEURONS TH SUBIX, TH SUBXI EVOKED BY STIMULATION OF INTERCOSTAL NERVES WERE STUDIED. IN THE MOTONEURONS OF THE MAIN INTERCOSTAL NERVE ONLY EXCITATORY (MONO, AND POLYSYNAPTIC) SYNAPTIC POTENTIALS WERE RECORDED IN RESPONSE TO STIMULATION OF THE HOMONYMOUS NERVE. STIMULATION OF THE NERVE TO THE EXTERNAL INTERCOSTAL MUSCLE AND OF THE DORSAL BRANCHES WAS NOT ACCCOMPANIED BY VISIBLE SYNAPTIC PROCESSES IN THESE MOTONEURONS THROUGH SMALL POLYSYNAPTIC EPSPS WERE SOMETIMES RECORDED. IN THE MOTONEURONS OF DORSAL MUSCLES THE HOMONYMOUS NERVE STIMULATION LED TO APPEARANCE OF SIMPLE SHORTLATENCY EPSPS. LONG LATENCY IPSPS (OR EPSPS MINUS IPSPS) WERE FOUND IN MOST MOTONEURONES OF THIS GROUP BY STIMULATION OF THE MAIN INTERCOSTAL NERVE. IN OTHER MOTONEURONS OF THIS GROUP STIMULATION OF THE MAIN INTERCOSTAL NERVE (AND THE NERVE TO THE EXTERNAL INTERCOSTAL MUSCLE) WAS NOT EFFECTIVE. IN THE MOTONEURONS OF THE NERVE TO THE EXTERNAL INTERCOSTAL MUSCLE EXCITATORY EPSPS (MONO AND POLYSYNAPTIC) WERE EVOKED BY STIMULATION OF THE HOMONYMOUS NERVE AS WELL AS OF THE MAIN INTERCOSTAL NERVE. STIMULATION OF DORSAL BRANCHES DID NOT PRODUCE ANY EFFECT IN THE LAST GROUP OF MOTONEURONS. RECIPROCAL RELATIONS BETWEEN THESE MOTONEURONAL GROUPS WERE NOT OBSERVED. PATTERNS OF SYNAPTIC RESPONSES OF THE RESPIRATORY MOTONEURONS TO SEGMENTAL AFFERENT IMPULSES STUDIED IN SPONTANEOUSLY BREATHING CATS WERE ESSENTIALLY DIFFERENT.

UNCLASSIFIED

3/3 020

UNCLASSIFIED

PROCESSING DATE=3006170

CIRC ACCESSION NO--AP0123469

ABSTRACT/EXTRACT—PECULIARITIES OF THE PSPS IN THE RESPIRATORY MOTONEURONS  
EVOKED BY SEGMENTAL AFFERENT STIMULATION IN SPONTANEOUSLY BREATHING AND  
ARTIFICIALLY VENTILATED CATS WERE DISCUSSED. FACILITY: THE A.  
A. BOGDANOVETZ INSTITUTE OF PHYSIOLOGY, ACADEMY OF SCIENCES, UKRAINIAN  
SSR, KIEV.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--CANCEROUS DEGENERATION OF FISTULAS IN CHRONIC OSTEOARTHRITIS -U-

AUTHOR--BEZHENUTS, V.I.

B

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 5, PP 82-84

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CANCER, OSSEUS DEFECT, NEOPLASM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605005/D09 STEP NO--UR/0531/70/000/005/0082/0084

CIRC ACCESSION NO--AP0139718

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE=04DEC70

CIRC ACCESSION NO--AP0139718

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CANCEROUS TRANSFORMATION OF FISTULAS IN CHRONIC OSTEOMYELITIS IS RARELY ENCOUNTERED. DURING THE LAST YEARS FOUR CASES OF CARCINOMATOSIS OF FISTULAS WERE OBSERVED IN CHRONIC HEMATOGENOUS OSTEOMYELITIS. IN ALL THE CASES THE NEOPLASTIC PROCESS FROM THE SOFT TISSUES SPREAD TO THE BONE TISSUE AND METASTASIZED INTO REGIONAL LYMPH NODES. IN THE CLINICAL PICTURE OF THIS DISEASE SEVEN PRINCIPAL SIGNS OF NEOPLASTIC TRANSFORMATION WERE NOTED: 1) CONSTANT PAIN IN THE REGION OF THE FISTULAR CANAL, 2) DISCHARGE FROM THE FISTULAS OF PUS WITH A FETID SMELL, 3) DISCHARGE OF CASEOUS MASSES FROM THE FISTULAS, 4) GROWTH OF DENSE GRANULATIONS AROUND THE FISTULAR CANALS COVERED WITH A DIRTY COATING, 5) THE FLOOR OF THE WOUND AROUND FISTULAR CANALS HAS A SEBACEOUS LOOK, 6) ENLARGEMENT OF THE REGIONAL LYMPH NODES, 7) IN THE INITIAL PERIOD OF NEOPLASTIC TRANSFORMATION THE OSTEOMYELITIC FISTULA ON ROENTGENOGRAMS ARE CHANGES CHARACTERISTIC FOR THE OSTEOMYELITIC PROCESS; AT LATER STAGES THE ROENTGENOGRAMS SHOW MARKED FOCI OF BONE DESTRUCTION, EVEN ITS FOCAL FUSION. HISTOLOGICAL INVESTIGATIONS YIELDED A PICTURE OF PLANOCELLULAR CORNIFYING CANCER, WHEREAS IN THE LYMPH NODES METASTASES OF CANCEROUS CELLS, THE TREATMENT OF THESE PATIENTS WAS COMPLEX, SURGICAL, X RAY AND CHEMOTHERAPY. REMOTE FOLLOW UP FOR 1-3 YEARS REVEALED NO RELAPSES. FACILITY: ORTOPEDO-TRAVMATOLOGICHESKOYE OTDELENIYE IVANO-FRANKOVSKUY GOROSKOV KLINICHESKOV BOL'NITSY NO. 1, TSENTRAL'NYY INSTITUTA TRAVMATOLOGII I ORTOPEDII.

UNCLASSIFIED

USSR

BEZIUKO, A. P., BRANETS, V. N., ZAKHAROV, YU. M., SHMYGLEVSKIY, I. P., Moscow

"Application of Quaternions in the Theory of Finite Rotation of a Solid State"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 1, January-February 1971, pp 123-134

**Abstract:** In this article the basic results of the theory of finite rotation of a solid state obtained in the form of formal operations on hypercomplex numbers (quaternions) are presented. New results are obtained for the addition formulas of finite rotations defined by the Rodrig-Hamilton parameters. A generalization of the known theorems of finite rotation theory is presented, and the correctness of the form of addition of rotations when summing relative motions is demonstrated. The application of quaternions makes it possible easily to obtain all the basic results of the theory of finite rotations and, in addition, to describe the position of the solid state in terms of nondegenerate kinematic parameters.

In a number of problems the angular position of the solid state is defined by solving the kinematic equations on a digital computer. The selection of the kinematic parameters affects the calculations significantly in 1/2

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BEZHKO, A. P., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 1, January-February 1971, pp 123-134

this case, and for this reason the Rodrig-Hamilton parameters are advantageous. These parameters do not degenerate for any position of the solid state and they are convenient for use in a control system; there is only one coupling equation when these parameters are used, which simplifies the numerical solution of the kinematic equations. Use of the quaternions follows from use of the Rodrig-Hamilton parameters.

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USSR

UDC 577.391:547.476

GROZDOV, S. P., BEZIN, G. I., KENDYSH, I. N., KIR'YANOV, I. Yu., and  
VASIL'YEVSKAYA, V. V., Institute of Biophysics, Ministry of Health USSR,  
Moscow

"Mechanism of the Physiological Action and of the Radiation-Protective  
Effect of Dimethylsulfoxide"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 522-527

**Abstract:** Dimethylsulfoxide (DMSO), on being administered intraperitoneally to rats in the form of a 50% aqueous solution in a dose of 5.4 g/kg before irradiation of the animals with gamma-rays in a dose of 900 r, exerted a pronounced radiation-protective effect, which was considerably enhanced by the administration of ATP. DMSO reduced the action of corticosteroids on tissues, although it increased their secretion in the organism. Reduction of the utilization of  $O_2$ , inhibition of glycolysis, and other effects indicated inhibition of metabolic processes in lymphoid tissues (the spleen and thymus) under the action of DMSO. As distinguished from other radiation protectors, DMSO did not produce hypoxia, increase the content of SH groups, or lower the redox potential in tissues. Differences between the mechanism of action of DMSO and that of aminothiols explain the enhancement of the  
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GROZDOV, S. P., et al., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 522-527

radiation-protective effect upon their joint application. As indicated by the results of the experiments with ATP, this enhancement will presumably also be observed on joint administration of DMSO with other substances which, similarly to aminothiols, displace the redox balance of the organism towards reduction.

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1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EFFECT OF THE TEMPERATURE GRADIENTS ON THE INTENSITY OF X RAY  
REFLECTIONS -U-  
AUTHOR--(03)--NAVASARDYAN, M.A., KARAKHANYAN, R.K., BEZIRGANYAN, P.A.  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIYA, 1970, 15(2), 235-9 B  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY DIFFRACTION, TEMPERATURE GRADIENT, QUARTZ CRYSTAL,  
SILICON SINGLE CRYSTAL, POTASSIUM COMPOUND, HYDROGEN COMPOUND, PHOSPHATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1751

STEP NO--UR/0070/70/015/002/0235/0239

CIRC ACCESSION NO--AP0125369

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0125369  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF THE TEMP. GRADIENT OF THE INTENSITY OF X RAY DIFFRACTION MAX. WAS INVESTIGATED TO STUDY HOW THEY DEPEND ON THE THICKNESS AND ABSORPTION OF THE REFLECTING CRYSTAL ( $\mu$  T), ON THE MAGNITUDE AND DIRECTION OF THE TEMP. GRADIENT, AND ON THE INTERPLANAR DISTANCES OF THE REFLECTING PLANES OF CRYSTALS OF QUARTZ, SI, KH SUB2 PO SUB4, AND NH SUB4 H SUB2 PO SUB4 IN THE FORM OF THE PLANE PARALLEL THIN DISKS OR PLATES. THE MEASUREMENTS WERE CARRIED OUT UNDER CONDITIONS OF ANOMALOUS OR ORDINARY TRANSMISSION OF X RAYS FOR WHICH THE VALUE OF  $\mu$  T WAS VARIED BY CHANGING THE CRYSTAL THICKNESS OR THE WAVELENGTH. IN GENERAL, THE INTENSITY OF THE REFLECTIONS DEPENDS ON THE MAGNITUDE AND DIRECTION OF THE TEMP. GRADIENT. AT SMALL VALUES OF  $\mu$  T (ANOMALOUS DISPERSION BEING ABSENT), THE REFLECTION INTENSITY DUE TO THE GRADIENT INCREASES. AT MEDIUM  $\mu$  T (0.5 SMALLER THAN  $\mu$  T SMALLER THAN 15) THE REFLECTION INTENSITY CAN EITHER INCREASE AND DECREASE DEPENDING ON THE POSITION OF THE DIFFRACTION VECTOR (B) AND GRADIENT VECTOR (S). A GREAT  $\mu$  T THE REFLECTION INTENSITY DECREASES DUE TO THE GRADIENT. THE INFLUENCE OF THE TEMP. GRADIENT INCREASES AS THE INTERPLANAR DISTANCE OF THE REFLECTION PLANES DECREASES. FROM THE POINT OF INFLUENCING THE REFLECTION INTENSITY, THE LINE DISLOCATION IS EQUIV. TO 2 TEMP. GRADIENTS DIRECTED AGAINST EACH OTHER.  
FACILITY: EREVAN. GOS. UNIV., EREVAN, USSR.

UNCLASSIFIED

1/2 032

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--COMPARATIVE STUDY OF THE SUPRAMOLECULAR TRANSITIONS OF POLYETHYLENE  
AND POLYCHLOROPRENE FILMS DURING UNIAXIAL STRAIN -U-

AUTHOR--(04)-BARANOV, V.G., BEZIRGANYAN, P.A., GASPARYAN, K.A., RAPYAN,  
YU.A.

COUNTRY OF INFO--USSR

*B*

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 47-59

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--POLYETHYLENE, POLYCHLOROPRENE, PLASTIC FILM, ELONGATION,  
BREAKING STRENGTH, X RAY DIFFRACTION, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0968

STEP NO--UR/0431/70/005/001/0047/0059

CIRC ACCESSION NO--APO136398

UNCLASSIFIED

2/2 032  
CIRC ACCESSION NO--AP0136398

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH PRESSURE POLYETHYLENE (I) AND POLYCHLOROPRENE (II) FILMS WERE ELONGATED UP TO THE BREAKING POINT AND THEIR STRUCTURAL CHANGES WERE STUDIED BY OPTICAL AND X RAY DIFFRACTION. IN I, REGIONS OF THE REVERSIBLE DEFORMATION (40-50PERCENT ELONGATION), IRREVERSIBLE RECRYSTN. (SMALLER THAN OR EQUAL TO 140PERCENT DEFORMATION), AND THE TRANSITION OF THE SPHERULITES TO FIBRILS (SMALLER THAN OR EQUAL TO 500PERCENT DEFORMATION) WERE OBSO. IN II, THERE ARE 2 TYPES OF DIFFRACTION PATTERNS: 1 CORRESPONDING TO DEFORMATION SMALLER THAN OR EQUAL TO 300PERCENT AND THE OTHER TO 350-800PERCENT DEFORMATION.

FACILITY: EREVAN. GOS. UNIV., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.674.1.011.2

BEZKAKOTOVA, T. B., PORYVAYEV, B. N.

"Input Conductance of a Thin Circular Loop Antenna"

Moscow, Radiotekhnika i Elektronika, Vol 26, No 9, Sep 71, pp 1712-1715

**Abstract:** General formulas are derived for the parameters of loop antennas with regard to the actual distribution of current over the antenna. The formulas are applicable in the UHF range for wide-band operation where the dimensions of the loop may be comparable with the wavelength over part of the band. In such cases, current distribution cannot be assumed to be uniform. Experimental and theoretical data are compared by expressing the input conductance of an open loop antenna in terms of the corresponding quantity for a shielded loop. In conclusion, the authors thank A. Z. Fradin for constructive criticism during completion of this work.

1/1

1/2 019  
TITLE--THE EFFECT OF XYLITE ON THE INTENSITY OF BILE SECRETION AND  
SYNTHESIS OF BILIC ACID -U-  
AUTHOR--BEZKOROVAYNAYA, N.M.

COUNTRY OF INFO--USSR

SOURCE--BYULETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,  
NR 5, PP 69-71  
DATE PUBLISHED-----70

B

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BILE, MACE RAT, DOG, SECRETION, BILIRUBIN, CHOLESTEROL, WHITE  
RAT, DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0217

STEP NO--UR/0219/70/069/005/0069/0071

CIRC ACCESSION NO--AP0120915

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AP0120915  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON 30 MALE RATS AND 3 DOGS WITH SCHWANN DASTR FISTULA IT WAS ESTABLISHED BY XYLITE EXERTS AN EFFECT ON THE INTENSITY OF BILE SECRETION, CHOLATOGENESIS, BILIRUBIN AND CHOLESTEROL EXCRETION. CHOLERETIC REACTION IN DOGS CONTINUES FOR 2-3 HOURS AND IN INCREASE OF THE XYLITE DOSE FROM 200-400 MG-KG IT AUGEMENTS. THE SYNTHESIS OF CHOLATES RISES MAINLY AT THE EXPENSE OF TAUROCHOLIC AND DESOXYCHOLIC ACIDS. THE CONTENT OF BILIRUBIN AND CHOLESTEROL IN THE BILE RISES. ALBINO RATS ARE LESS SENSITIVE TO XYLITE. WHEN THE PREPARATION IS INTRODUCED IN A DOSE OF 200 MG-KG THE CHOLERETIC REACTION DOES NOT USUALLY OCCUR, WHILE THE RATE OF SECRETION EVEN DECREASES SOMEWHAT IN A DOSE OF 400 MG-KG. NONETHELESS, THE SYNTHESIS OF CHOLATES IN RATS XYLITE INTENSIFIES MAINLY AT THE EXPENSE OF TAUROCHOLIC, GLYCOCHOLIC AND DESOXYCHOLIC ACIDS. XYLITE DOES NOT EXERT ANY NEGATIVE INFLUENCE ON BILIRUBIN AND CHOLESTEROL SECRETION.  
FACILITY: TERNOPOL MEDICAL INSTITUTE.

Acc. Nr:

AFO037016

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56,  
Nr 2, pp 273-278

## EFFECT OF BILE ACIDS ON BILIATION INTENSITY AND CHOLATE FORMATION

Skakun, N. P.; Drogovoz, S. M.; Bezkorovaynaya, N. M.

From the Department of Pharmacology, Medical Institute, Ternopol:

Comparative studies of bile acid preparation effect (dehydrocholic, cholic and glycholic) on the biliation intensity and cholate formation have been carried out in 66 male white rats. Dehydrocholic acid has the most marked choleric effect, natural bile acids being considerably less active in this respect. The activity of cholic and glycholic acids in equimolecular doses is nearly similar.

Natural bile acids are more active in their cholate formation effect. Even in small doses they favour a sharp rise in the concentration and quantity of cholates. This is mainly due to the effect of the tauric cholic acid and in a lesser degree to the glycholic and deoxycholic acids. In contrast to natural bile acids the dehydrocholic one causes a slight decrease in cholate concentration in the bile, however due to the high level of the choleric reaction there is a general increase in the quantity of cholates. Dehydrocholic acid stimulates the cholate formation on account of the synthesis and excretion of tauric cholic acid and to a lesser degree of the deoxy- and glycholic acids.

REEL/FRAME  
19721952

2 Dn.

USSR

UDC 533.601.16:533.9

SERGEYEV, V. L., BEZLADNOV, G. M., LYASHKEVICH, V. D.

"Experimental Study of Heating of Blunt Body by a Plasma Stream"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 4, Apr. 71, p. 622-627.

**Abstract:** This paper presents the results of measurement of the heat flux from a high temperature gas jet to a blunt body in the area of the stagnation point as a function of blunt radius, top angle of cone body, pressure and stagnation enthalpy. A generalized formula is produced, relating the heat flux to the parameters mentioned. The results of measurements performed with an electric arc heater agree well with measurements made in shock tubes.

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USSR

UDC: 621.373.351.1(088.8)

BEZLERGIN, V. I., ROMANOV, A. A.

"A Slave Multivibrator"

USSR Author's Certificate No 261454, filed 22 Aug 68, published 22 May 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G193 P)

Translation: This Author's Certificate introduces a slave multivibrator based on two transistors with a common resistor in the emitter circuit. To increase the power of the output pulse, a circuit which consists of a storage capacitor and a resistor shunted by a semiconductor diode is connected between the normally open transistor and the power supply.

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1/2 008  
TITLE--ISOTOPIC ANALYSIS OF NITROGEN -U-

PROCESSING DATE--04DEC70

B

AUTHOR--(02)-SNOPOV, N.G., BEZLYUDNYY, N.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 259-63

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN ISOTOPE, METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/1203

STEP NO--UR/0368/70/012/002/0259/0263

CIRC ACCESSION NO--A00138218

UNCLASSIFIED

2/2 008

CIRC ACCESSION NO--APO138218

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOTOPE CONTENT OF N WAS DETERMINED. ON THE EQUIPMENT DESCRIBED EARLIER (N. G. SNOPOV AND N. N. BEZLYUDNYI, 1969). ZERO METHOD OF SIGNAL MEASUREMENT WAS SUGGESTED INSTEAD OF SCANNING SPECTRA TO IMPROVE THE ACCURACY. THE SIGNAL WAS MEASURED AT 297.9 NM. THE METHOD COULD BE USED AT GREATER THAN OR EQUAL TO 2 PERCENT PRIME-15 N CONTENT. AT LOWER CONCNS. THE ERROR BECOMES HIGH AND AT 0.4 PERCENT PRIME-15 N THE SIGNAL IS EQUAL TO NOISE. ROUTINE ANAL. TAKES 2-3 MIN. THE PRINCIPAL ADVANTAGE OF ZERO METHOD IS THE USE OF PHOTOMETRIC WEDGE WHOSE PROPERTIES ARE NOT TIME DEPENDENT. WITH THE DESCRIBED VACUUM SYSTEM AT 10 PRIME NEGATIVE 4 MM HG THE SAMPLE SIZE COULD BE REDUCED TO 0.02 MG N WITH NO LOSS OF ACCURACY.

UNCLASSIFIED

USSR

UDC 621.318.13:621.372.85

BEZMATERNYKH, L. N., SHVARTSMAN, G. I., MASHCHENKO, V. G., AFANAS'YEV, A. P., BOKOV, L. A., PROKHOPOV, A. R., ZAYTSEV, V. A., KUZHELEV, S. M.

"Controllable Delay Lines Based on Yttrium-Garnet Ferrite Rods"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn. T. 2 (Thin Magnetic Films, Computer Technology and Radio Engineering--collection of works. Vol 2), Krasnoyarsk, 1971, pp 142-146 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11B190)

Translation: The paper presents the results of an experimental study on excitation and propagation of magnetoelastic and magnetostatic waves in yttrium-garnet ferrite rods as applied to their use in controllable delay lines. An analysis is made of relationships for delay time as a function of the external magnetic field when frequency is held constant, delay time as a function of frequency when the magnetic field is held constant, and total insertion losses as a function of delay time. The measurements were made in the frequency range of 560-3800 MHz. Two illustrations, bibliography of eight titles. A. K.

1/1

1/3 030 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--BEAM INSTABILITY OF A CURRENT, AND PLASMA HEATING BY AN ELECTRON  
BEAM PRODUCED IN A LINEAR DISCHARGE -U-  
AUTHOR--(031)-KARCHEVSKIY, A.I., AVERIN, V.G., BEZMELNITSYN, V.N.  
COUNTRY OF INFO--USSR *B*  
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
NR 4, PP 1131-1145  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC FIELD, PLASMA INSTABILITY, CURRENT DENSITY, ELECTRON  
BEAM, PLASMA HEATING, HIGH FREQUENCY DISCHARGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/1714

STEP NU--UR/0056/70/058/004/1131/1145

CIRC ACCESSION NO--AP0106250

UNCLASSIFIED

2/3 030  
CIRC ACCESSION NO--APO106250 .UNCLASSIFIED PROCESSING DATE--23OCT70  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS DEMONSTRATED EXPERIMENTALLY  
THAT IN A LINEAR STRONG CURRENT DISCHARGE (CURRENT I APPROXIMATELY EQUAL  
TO 15 KA, FREQUENCY 640 KHZ) WITH A PLASMA DENSITY BETWEEN 1 TIMES 10  
PRIME13 AND 7 TIMES 10 PRIME13 CM PRIME NEGATIVE3 IN STRONG ELECTRIC  
FIELDS E SMALLER THAN OR SIMILAR TO 500 V-CM A BEAM CURRENT INSTABILITY  
DEVELOPS, THE CURRENT IS CARRIED BY A SMALL FRACTION (SIMILAR TO 10  
PRIME NEGATIVE3) OF THE PLASMA ELECTRONS AND THE MAIN PART OF THE  
DISCHARGE CURRENT IS CARRIED BY THE BEAM OF ACCELERATED ELECTRONS. THE  
ELECTRON BEAM MAY BE PASSED THROUGH THE ANODE OF THE SYSTEM AND IS OF  
INTEREST FROM THE VIEWPOINT OF CARRYING OUT, FOR EXAMPLE, PHYSICAL  
INVESTIGATIONS OF PLASMA HEATING IN THE PLASMA BEAM SYSTEM. THE  
PARAMETERS OF THE ELECTRON BEAM PASSING THROUGH THE ANODE ARE THE  
FOLLOWING: TOTAL BEAM CURRENT 10-15 KA, BEAM ELECTRON DENSITY N PRIME  
ELECTRONS IN THE BEAM E PRIME VARIES BETWEEN 3 AND 20 KEV, DURATION OF  
BEAM SIMILAR TO 0.6 MU SEC, ELECTRON BEAM POWER SIMILAR TO 100 MW, BEAM  
ELECTRON CURRENT DENSITY SIMILAR TO 70 A-CM PRIME2. INTERACTION BETWEEN  
PRIME13 AND 7 TIMES 10 PRIME13 CM PRIME NEGATIVE3 LEADS TO STRONG BEAM  
HEATING OF THE PLASMA TO A PRESSURE NT APPRIXIMATELY EQUAL TO 10 PRIME16  
EV-CM PRIME3 AND A HOT PLASMA CONFINING TIME IN A MIRROR TRAP DEVICE OF  
THE ORDER OF 20 MU SEC.

UNCLASSIFIED

3/3 030

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106250

ABSTRACT/EXTRACT--IT IS SHOWN THAT THE ANOMALOUS OHMIC RESISTANCE OF THE LINEAR DISCHARGE (WHICH IN THESE EXPERIMENTS IS THE ELECTRON GUN) CAN BE OBSERVED DURING THE FIRST HALF PERIOD OF THE CURRENT AND IS DUE TO RESTRICTION OF THE NUMBER OF CARRIERS IN THE TURBULENT ZONE OF THE DISCHARGE, ELECTRON ACCELERATION AND TRANSFER OF ENERGY BY ACCELERATED ELECTRONS TO THE SYSTEM ANODE.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DETECTION OF ELECTRONS BY SURFACE BAR RIER SILICON DETECTORS  
AGAINST BACKGROUND OF GAMMA RAYS OF COMPARABLE ENERGY -U-  
AUTHOR--(03)-MAKSIMENKO, B.P., BEZMELNITSYN, V.N., MITIN, A.A.

COUNTRY OF INFO--USSR

B

SOURCE--AT. ENERG. (USSR); 28: 71-3 (JAN 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR DETECTOR, CONVERSION ELECTRON SPECTRUM, GAMMA  
BACKGROUND, SILICON SEMICONDUCTOR, CUBALT ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0225

STEP NO--UR/0089/70/028/000/0071/0073

CIRC ACCESSION NO--APO105301

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AP0105301  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SURFACE BARRIER SILICON COUNTER  
WITH A 40 TIMES 40 MM NAI(TL) CRYSTAL WAS USED FOR SPECTROMETRIC STUDIES  
OF ELECTRONS USING A PRIME57 CO SOURCE EMITTING 14, 122, AND 136 KEV  
GAMMA QUANTA AND ELECTRONS OF INTERNAL CONVERSION WITH 115 AND 129 KEV  
ENERGIES. THE RESULTS SHOWED THE COUNTER WAS EFFECTIVE IN RECORDING THE  
ELECTRONS UNDER CONDITIONS OF A STRONG BACKGROUND FIELD OF GAMMA  
RADIATION.

UNCLASSIFIED

USSR

UDC 621.385.6

MASHNIKOV, V. V., BEZMENOV, B. A., ZHELEZOVSKIY, B. YE.

"Analysis of a Two-Signal Balanced Traveling-Wave Tube Amplifier"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1042-1046

**Abstract:** A theoretical and experimental study was made of the conditions of simultaneous amplification of two signals of equal input amplitudes and different frequencies in an O-type traveling wave tube. The predominant amplification of one of the signals is determined by its frequency, amplification coefficient and the steepness of the amplitude characteristic in the signal of single-frequency mode. Depending on the operating conditions of the tube, each of the mentioned parameters can be defined. With equal steepness of the amplitude characteristic and the amplification coefficient, the higher frequency signals will receive predominant amplification. For equal amplification coefficients and small detuning, the signal with greater steepness of the amplitude characteristic will receive predominant amplification. The signal with a high amplification coefficient will receive predominant amplification for equal steepness of the amplitude characteristic and small detuning.

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BEZMENOV, V. Ya.

KHM/1 R-1460/5-2247-77  
JULY 1973

17

## V. HIGH-SPEED FLOW PAST BODIES

Bezmenov, V. Ya., and P. I. Gorenburg.  
Application of a nonstationary analogy to  
an investigation of explosive wave effects  
on an obstacle in a hypersonic tunnel.  
 Uchenye zapiski Tsentral'nogo aero-  
 dinamicheskogo instituta, v. 2, no. 6,  
 1971, 48-54. (RZhMekh, 5/72, no. 5V282)

The results are presented of an experimental investigation of shock wave interaction from a blunt body (a plate with a blunt leading edge), with a solid boundary (a plate with a sharp leading edge), in a helium stream at  $M = 23$  to  $27$ . The pressure distribution around the plate with the sharp leading edge behind the incident shock wave is given. By means of a detonation analogy, the results obtained are used to analyze the effect of a plane shock wave on a two-dimensional barrier. It is shown that in this case the experimental results agreed with the calculated data. Counterc pressure was not taken into account during the tests.

Tsvetkova, M. V. Characteristics of supersonic  
flow around blunt bodies under conditions of  
intensive injection. IN: Trudy II Respublikanskoy  
konferentsii po aerogidromekhanike, teplotobremenu  
i massobremenu. Sektsiya "Aerodinamika bol'shikh

skorostey". Kiyev, Kiyevskiy universitet, 1971,  
 112-115. (RZhMekh, 5/72, no. 5V415)

Results are presented of experimental research on the effect of air injection through a permeable body surface on the position and

biblio

USSR

UDC: 8.74

DZHUGAN, F. K., KMETIK, N. Ye., BEZMOLITVENNY, O. V.

"A Combined I/O Device"

Tr. NII upravl. vychisl. mashin (Works of the Scientific Research Institute of Control Computers), 1971, vyp. 4, pp 46-59  
(from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V603)

Translation: The article gives the particulars of an algorithm and the principle of the circuitry of a combined I/O device for punched tapes which is based on discrete elements. Authors' Resumé.

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USSR

UDC: 539.128.2

BALDIN, A. M., BEZNOGIKH, Yu. D., ZINOV'YEV, L. P., ISSINSKIY, I. B., KAZANSKIY, G. S., MIKHAILOV, A. I., MOROZ, V. I., PAVLOV, N. I., and PUCHKOV, G. P.

"Acceleration and Removal of Deuton Beams from the OIYaI Synchrophasotron"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 29-31

**Abstract:** This article describes the realization of a proposal for accelerating and extracting deutons with existing synchrophasotron systems made in an earlier article (Beznogikh, Yu. D., et al, Reprint OIYaI, 1968, No. R9-4214, Dubna). The basic idea of the proposal was to multiply the linear acceleration by two through halving the velocity of the deutons going into and coming out of the linear accelerator compared to the velocity of the protons. The acceleration in the synchrotron is done in two steps: first, doubling the acceleration; second, reaching the limiting frequency of the accelerating system and then making the transi-

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USSR

BALDIN, A. M., et al., *Pribory i Tekhnika Eksperimenta*, No 3, 1971, pp 29-31

tion to the plateau in the first multiple of the acceleration. By using a debuncher at the accelerator output, the capture of the deutons in first the quasi-betatron and then the synchrotron modes was increased. The authors are associated with the OIYAI (Joint Institute of Nuclear Research, Dubna).

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USSR

UDC 632.95

BEZOBRASOV, Yu. N., BRYSOVA, V. P., and GUKOVA, R. A.

"New Fungicides -- Derivatives of Dithiocarbamic Acid"

"Zh. Organ. Khimii" (Journal of Organic Chemistry, Vol 7, No 11, 1971; pp 2282-2285) (Translation from Referativnyy Zhurnal Khimiya, No 8, Moscow, 1972, No 8 N607)

Translation: Active fungicides of the general formula  $ROC(0)-SC(S)NR'R''$  (I) (R = alkyl, naphthyl, aryl, aralkyl; R' = alkyl,  $CH_2CH_2CN$ ; R'' = H, or alkyl) are produced by reaction of the sodium salts of derivatives of dithiocarbamic acid with chlorocarbonates. To 122.5 gm iso-PrOCOCL in 80 gm acetone is added a 40% aqueous solution of 143 gm of  $NaSC(S)N(Me)_2$  at 10-15°. At the same temperature, the mixture is stirred for 40 minutes, filtered, the residue washed with water until it gives a negative reaction to  $Cl^-$ , and dried at 30°. The yield was 192 gm of (I) (R = iso-Pr, R' = R'' = Me), mp 61-2° (ether). Also produced were I (shown are R, R', R'', yield in %, mp in °C): 1- $C_{10}H_7$ , Me, H, 74, 93-4; 1- $C_{10}H_7$ , Me, Me, 98.5, 63-4; 1- $C_{10}H_7$ , Et, Et, 94.5, 95-6; 1- $C_{10}H_7$ ,  $CH_2CH_2CN$ ,  $CH_2CH_2CN$ , 77.2, 121-2; 2- $C_{10}H_7$ , Me, Me, 97.2, 105-6; m- $C_6H_4Me$ , Me, H, 58.5, 36-7; m- $C_6H_4Me$ , Me, Me, 85.3, 71-2; 1/2 m- $C_6H_4Me$ , Et, Et, 95.6, 36-7; p- $C_6H_4Me$ , Me, H, 78, 84-5; p- $C_6H_4Me$ , Me, Me,

USSR

BEZOBRASOV, Yu. N., et al., "Zh. Organ. Khimii" (Journal of Organic Chemistry, Khimiya, No 8, Moscow, 1972, No 8 N607)  
Vol 7, No 11, 1971; pp 2282-2285) (Translation from Referativnyy Zhurnal

86.1, 104-5; p-C<sub>6</sub>H<sub>4</sub>Me, Et, Et, 84.5, 46-7; o-C<sub>6</sub>H<sub>4</sub>Me, Me, H, 58.6, 68-9; o-C<sub>6</sub>H<sub>4</sub>Me, Me, 90, 62-3; o-C<sub>6</sub>H<sub>4</sub>Me, Et, Et, 92.2, 56-7; p-ClC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>, Et, Et, 85.3, 18-9; 2,4,5-Cl<sub>3</sub>C<sub>6</sub>H<sub>2</sub>, Me, Me, 76.2, 10-3; 2,4,6-Cl<sub>3</sub>C<sub>6</sub>H<sub>2</sub>, Me, 75.3, 94-5; 3,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>CH<sub>2</sub>, Me, Me, 92.5, 84-5; Me, CH<sub>2</sub>CH<sub>2</sub>CN, H, 67.7, 67-8; CH<sub>2</sub>Cl, CH<sub>2</sub>CH<sub>2</sub>CN, H, 32, 87.5-88.5; iso-Pr, Et, Et, 46.7, 90-1; Bu, Me, Me, 95.1, 25-7; sec-Bu, Me, Me, 95.8, 13.5-14.5; Ph, Me, Me, 92, 99-100; C<sub>6</sub>Cl<sub>5</sub>, Me, Me, 43.6, 120 (variable); o-C<sub>6</sub>H<sub>4</sub>NO<sub>2</sub>, Me, Me, 93.6, 79-80; PhCH<sub>2</sub>, Me, Me, 53.4, 65-6.

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**Pesticides**

USSR

UDC 547.496.2

BEZOBRAZOV, YU. N., BRYSOVA, V. P., and GUKOVA, R. A.**"Novel Fungicides - Derivatives of Dithiocarbamic Acid"**

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 11, Nov 71, pp 2282-2285

**Abstract:** Derivatives of dialkyldithiocarbamic acid -- alkyl(aryl)-hydroxycarbonyldithiocarbamates were synthesized. These products exhibit fungicidal activity. To 122.5 g isopropylchlorocarbonate in 80 g acetone, 143 g of a 40% aqueous suspension of sodium dimethyldithiocarbamate is added gradually with vigorous stirring at 10-15°. Then the reaction mass is stirred for 40 min at the same temperature. The yellow solid which precipitates is washed with water until a negative reaction for chloride ions is obtained, and then dried at 30°. The yield of isopropoxycarbonyl-N,N-dimethyldithiocarbamate, m.p. 61-62° is 92%. Other derivatives were synthesized in an analogous manner. The fungicidal and bactericidal activity exhibited by these compounds is accompanied by low toxicity towards warm-blooded animals.

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USSR

UDC: 621.694.2

BEZNOGIKH, YU. D., ZING'YEV, L. P., KADYROV, R. B., KARYAGIN, YU. K.,  
PLYASHKEVICH, N. N., POPOV, V. A., SEMENYUSHKIN, I. N. and STEPANYUK, V. L.

"Injector Debuncher of the OIYAI Synchrophasotron With Energy Modulation of  
the Accelerated Beam"

Moscow, Pribory i Tekhnika Eksperimenta, Zhurnal Akademii Nauk SSSR, No 1,  
Jan/Feb 72, pp 37-38

**Abstract:** The particle intensity in the OIYAI synchrophasotron can be increased by 75% by reducing the energy scattering in the outlet beam and by modulating the energy of the injected beam. Both functions can be performed by a single high-frequency debuncher resonator located at a certain distance from the linear accelerator.

The debuncher resonator is  $1/4$  of the wave length of the round coaxial line. The tuning is achieved by deflecting the end walls and by a secondary power input. The diagram and the description of this device are presented. Some experimental results obtained with and without the debuncher are also given.

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Acc. Nr: AP0043591BEZNOSIKOV B.V.

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 800-809FINE STRUCTURE OF EXCITON-MAGNON ABSORPTION OF LIGHT IN KMnF<sub>3</sub>

Belyayeva, A. I.; Yeremenko, V. V.; Beznosikov, B. V.

Some peculiarities of the structure of pure exciton and exciton-magnon light absorption bands in the region of the  ${}^6A_{1g}({}^6S) \rightarrow {}^4A_{1g}{}^4E_g({}^4G)$  transition in weakly ferromagnetic KMnF<sub>3</sub> are observed and analyzed. It is shown that splitting of pure exciton lines and variation of the magnon frequencies at points *W* and *U* in the Brillouin zone make an additive contribution to the change of the exciton-magnon absorption band in a magnetic field. This may be regarded as a proof of weakness of exciton-magnon interaction for the  ${}^6A_{1g}({}^6S) \rightarrow {}^4A_{1g}{}^4E_g({}^4G)$  transition in KMnF<sub>3</sub>. The conclusions are valid for a similar transition in RbMnF<sub>3</sub>.

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REEL/FRAME  
19762063

15

1/2 025 UNCLASSIFIED PROCESSING DATE--02 OCT 70  
TITLE--INFRARED SPECTROSCOPIC STUDY OF DEHYDROCHLORINATED POLY(VINYL  
CHLORIDE) FIBERS AND FILMS AND THEIR MODIFICATIONS -U-  
AUTHOR--(051)-GRACHEV, V.I., BEZPRUZYANNYKH, A.V., SHELKUNOV, V.G.,  
KIL'YENKO, I.B., KIRILENKO, YU.K.  
COUNTRY OF INFO--USSR

B

SOURCE--ZH. PRIKL. KHM. (LEVINGRAD) 1970, 43(3) 633-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--IR SPECTRUM, POLYVINYL CHLORIDE FIBER, TEMPERATURE DEPENDENCE,  
CATALYST ACTIVITY, CHLORINATION, DEHYDROGENATION, BROMINATION, THIOUREA,  
POLYMER FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/0305

STEP NO--UR/0080/70/043/003/0633/0638

CIRC ACCESSION NO--AP0111499

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70  
CIRC ACCESSION NO--AP0111499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF MEDIUM, CATALYST, AND TEMP. OF DEHYDROCHLORINATION OF POLY(VINYL CHLORIDE) FIBERS AND FILMS ON THEIR IR SPECTRA WAS STUDIED. DEHYDROCHLORINATION INCREASES WITH TEMP. (110-150DEGREES) AND TIME AS SHOWN BY INCREASED INTENSITY OF THE BANDS AT 1680-1720 AND 1605 CM PRIME NEGATIVE1 (UNSATD. C=O AND C=C BONDS). THE BAND INTENSITY AT 3028 CM PRIME NEGATIVE1 (END VINYL GROUPS) ALSO INCREASES WITH TEMP. THE PRESENCE OF A CATALYST INCREASES THE RATE, DIAZOAMINOBENZENE INCREASING THE RATE MORE THAN ALPHA,NAPHTHYLAMINE. USING DIAZOAMINOBENZENE, ALPHA AND BETA UNSUBSTITUTED ALDEHYDE GROUPS ARE FORMED (ABSORPTION AT 1690 CM PRIME NEGATIVE1). DEHYDROCHLORINATION PROCEEDS MORE RAPIDLY IN AIR THAN IN VACUUM. ALSO, THE TREATED PRODUCT WAS BROMINATED WITH 3PERCENT A.Q. BR AT 80DEGREES FOR 2 HR TO GIVE BRCHCH:CHCHBR GROUPS. SUBSEQUENT TREATMENT WITH THIOUPEA AT 100-2DEGREES SHOWS THE PRESENCE OF THIOAMIDE AND THIOURONIUM GROUPS, WHICH ARE REMOVED BY TREATMENT WITH 2N NAOH, IN THE SPECTRUM.

UNCLASSIFIED

USSR

UDC 615.616.24-003.656.6

BEZRODNYKH, A. A., KASPAROV, A. A., MAZUROV, V. I., KOCHETKOVA, T. A., RAZDVADOVSKIY, YE. F., SIDOROVA, N. V., KULIKOVA, T. P., GALITSINA, I. Z., ZAMARAYEVA, T. V.

"Antifibrosis Effect of Polyvinylpyridine-N-Oxide as a Compound to Prevent the Development of Silicosis"

Nauch. tr. Irkutsk. med. in-t (Scientific Works of the Irkutsk Medical Institute), 1972, vyp 110, pp 52-53 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3.54.874)

Translation: The polymers polyvinyl-pyridine-2- and 4-N-oxides had an effect on the degree of expression of histologic alterations in the early stages of the development of experimental silicosis (10 days) when administered intratracheally and, especially, hypodermically. These polymers normalized the indexes of the oxidation processes in the lung tissue and the myrocardium. After one, three and six months of the experiment, the polymers with a molecular weight of 40,000 to 80,000 retarded the development of fibrosis, reduced the amount of neutrally soluble collagen and 1/2

USSR

BEZRODNYKH, A. A., et al., Nauch. tr. Irkutsk. med. in-t, 1972,  
vyp 110, pp 52-53

normalized the amino acid composition of the lung tissue, the indexes of the oxidation phosphorylation and the activity of the intracellular enzymes. On intratracheal administration of polymers with a molecular weight of 50,000 to 1,500,000, the development of catarrhal bronchitis and bronchiolitis was noted.

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USSR

UDC 632.93:631.53.01

BEZRODNYY, G. P., Head of the Volgograd Plant Protection Station, and  
SAF'YANOV, S. P., Senior Scientific Co-worker of the Volzhsk Scientific  
Research Institute of Irrigated Land

"Preparation No 868 to Control Loose Smut"

Moscow, Zashchita Rasteniy, No 12, 1971, pp 27-28

**Abstract:** Test results are presented of preparation No 868 (an organic crystalline substance which dissolves well in water) obtained from the All-Union Institute for the Protection of Plants for production checking. It is used to control loose smut in spring wheat. Preparation No 868 resembles vitavax in its effect. The spread of the disease was limited by applying preparation No 868 to the seed before planting, but the net profit was increased insignificantly after subtracting the cost of the treatment for the irrigated and dryland test plots investigated.

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USSR

UDC: 536.24:536.42

BUTUZOV, A. I., FAYNZIL'BERG, S. N., BEZRODNYY, M. K., USENKO, V. I., KUDELYA, P. P.

"On the Problem of Studying Heat Exchange During Boiling of Liquids Under Inertial Loading Conditions"

Teplofiz. i teplotekhnika. Resp. mezhved. sb. (Thermal Physics and Heat Engineering. Republic Interdepartmental Collection), 1970, Vol 16, pp 137-140 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B869)

Translation: Experiments are conducted on determining the laws of heat exchange which accompany boiling of freon-12 and water on heating surfaces with thermal loads  $q = (6.6-200) \text{ kW/m}^2$ , and with inertial overloads  $a/g = 1-5250$ . Three typical heat exchange regions are distinguished: well developed boiling when  $q > q_{fc} + q_{ub}$ , undeveloped boiling --  $q_{fc} < q < q_{fc} + q_{ub}$ , and a heat exchange region with free convection --  $q < q_{fc}$ . The thermal loads  $q_{fc}$  and  $q_{ub}$  are given in the form of power functions of the inertial overloads and the kind of liquid. In addition,  $q_{fc}$  depends on the thickness of the liquid layer on the heat exchange surface. For the heat exchange region with free convection, the authors recommend the usual form of dimensionless relationship with substitution of inertial acceleration  $a$  for acceleration due to

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USSR

BUTUZOV, A. I., et al, Teplofiz. i teplotekhnika. Resp. mezhved. sb., 1970, Vol 16, pp 137-140 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B869)

gravity  $g$ . In the region of well developed boiling, the conventional form of relationship between the coefficient of heat exchange  $\alpha$  and heat flux  $q_b = q - q_{fc}$ . The effect of inertial overloading is accounted for in the parameter  $q_{fc}$ . In the region of undeveloped boiling, they propose a relationship of the form  $\alpha = c q_k^n (a/g)^m$ , where  $c$ ,  $m$  and  $n$  are constants. The results of the experiments agree with the data of McAdams, Mert and Clark. A description is given of the construction of an installation with closed circulation of the cooling agent in the rotor sections of a model; this installation can be used to conduct experiments at heat fluxes of up to  $10 \text{ MW/m}^2$ .  
Yu. Ye. Pokhvalov.

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Acc. Nr.: A70046706Ref. Code: 4R0146*B*

USSR

UDC 681.128.5

BUTUZOV, A.I., BEZRODNYY, M.K., FAYNZIL' BERG, S.N.,  
KUDELYA, P.P., USENKO, V.I.

"Thermistor Compensated Quantity Gage"

Termorezistornyy kompensirovanny urovneamer (cf. English  
above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy,  
Priborostroyeniye, 1970, No 1, pp 123-126

Translation:

The design is considered of a thermistor quantity  
gage with compensation for the errors associated with the  
variation of the parameters of the ambient medium.

*1/1**87 21*

Reel/Frame  
19790009

USSR

UDC 621.372.8

BEZRODNYY, V. G., FUNS, I. M., Institute of Radio Physics and Electronics of  
the Ukrainian SSR Academy of Sciences

"Time-Space Correlation of the Field Amplitude and Phase in a Wave Guide with  
a Statistically Uneven Boundary"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 1,  
1972, pp 73-82

Abstract: The method of perturbation theory in the Born approximation was used to solve the problem of space-time correlation of the field amplitude and phase in a flat waveguide with a statistically uneven wall. It is proposed that the height of the boundary unevennesses is low by comparison with the wavelength and  $|x_n l_x| \gg 1$ ,  $|\Delta x l_x| \gg 1$ ,  $l_y \gg \sqrt{D/|x_n|}$  ( $l_x$  and  $l_y$  are the correlation radii of the unevennesses along and transverse to the propagation path, respectively,  $D$  is the path length,  $x_n$  is the longitudinal wave number of the  $n$ -th normal wave,  $\Delta x \sim |x_n - x_{n-1}|$ ), and variation in the shape of the boundary with time takes place appreciably more slowly than the period of the electromagnetic oscillations. The space-time correlation coefficient has identical form for the field amplitude and phase. It does not depend on the specific  $1/2$

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USSR

BEZRODNYY, V. G., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 73-82

model of the wave guide and it is determined only by the statistical characteristics of the boundary unevennesses. The expressions for the dispersions of the amplitude and phase fluctuations, their spatial correlation functions and time spectra are analyzed in a number of limiting cases.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--ION EXCHANGE SEPARATION OF SMALL AMOUNTS OF SILICIC ACID FROM OTHER  
ELEMENTS FOR ITS PHOTOMETRIC DETERMINATION -U-

AUTHOR--(03)-NEMODRUK, A.A., PALEY, P.N., BEZROGOVA, YE.V.

COUNTRY OF INFO--USSR

B

SOURCE--ZH. ANAL. KHM. 1970, 15(2), 319-23

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, PHOTOMETRIC ANALYSIS, SILICON COMPOUND,  
INORGANIC ACID, CHEMICAL SEPERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0677

STEP NO--UR/0075/70/025/002/0319/0323

CIRC ACCESSION NO--APO113548

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--APO113548

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALPHA SILICIC ACID PASSES COMPLETELY THROUGH COLUMNS PACKED WITH CATION EXCHANGERS OR WITH WEAK BASE ANION EXCHANGERS DURING ITS SEPN. FROM OTHER ELEMENTS IN THE ABSENCE OF THE POLYMERIC FORMS OF SILICIC ACID AND CAN BE DETD. QUANT. IN THE FILTRATE. IN THE PRESENCE OF POLYMERIC FORMS (BETA AND GAMMA) THE ALPHA FORM CONCN. IN THE FILTRATE IS CONSIDERABLY OVERSTD., PARTIALLY DUE TO CONVERSION OF THE POLYMERIC FORMS TO THE ALPHA FORM DURING THE ION EXCHANGE PROCESS. ION EXCHANGE CANNOT BE USED FOR THE SEPN. OF SILICIC ACID FROM OTHER ELEMENTS DURING THE DETN. OF ITS TOTAL CONTENT BECAUSE THE POLYMERIC FORMS ARE MOSTLY DETAINED BY THE ION EXCHANGERS. THUS IT IS NECESSARY TO CONVERT ALL FORMS TO THE ALPHA FORM PRIOR TO PASSAGE THROUGH THE ION EXCHANGE COLUMN BY HEATING THE SOLN. WITH AN EXCESS OF NAOH. DIL. AN ALIQUOT CONTG. 10,500 UG SI IN A TEFLON FLASK TO 10ML WITH H SUB2 O, NEUTRALIZE WITH A 20PERCENT NAOH TO PH 2, 3, AND THEN ADD ANOTHER 3 ML 20PERCENT NAOH AND BOIL FOR 30 MIN. COOL POUR DROPSWISE INTO 2 ML HNO SUB3 WHILE MIXING, NEUTRALIZE WITH 2N NAOH TO PH 1, DIL. WITH H SUB2 O TO 20 ML AND PASS AT A RATE OF 0.25 ML-MIN THROUGH A COLUMN FILLED WITH KU-2 OR DOWEX 50X8 (H POSITIVE FORM). WASH THE COLUMN WITH 20 ML H SUB2 O INTO THE FILTRATE. DIS. THE FILTRATE TO 50 ML WITH H SUB2 O AND DET. SI IN AN ALIQUOT CONTG. 4, 50MUG SI.

UNCLASSIFIED

1/2 049 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ANISOTROPY OF COLLOIDS AND THE WEIGERT EFFECT IN SODIUM CHLORIDE  
CRYSTALS -U-  
AUTHOR--(03)--BEZRUCHIKO, V.M., BODRYAGIN, V.I., SHATALOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVRD. TELA 1970, 12(4), 1091-4

DATE PUBLISHED-----70

B

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SODIUM CHLORIDE, ANISOTROPY, RADIATION EFFECT, POLARIZED  
LUMINESCENCE, COLLOID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1370

STEP NO--UR/0181/70/012/004/1091/1094

CIRC ACCESSION NO--AP0128770

UNCLASSIFIED

2/2 049 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0128770  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMP. DEPENDENCE WAS INVESTIGATED  
OF THE HERSHEL EFFECT ON NA COLLOIDS IN NaCl CRYSTALS. BY IRRADN. WITH  
POLARIZED LIGHT, A DIRECTED DECOMP. OF THE COLLOIDS WAS OBSO. WHICH  
TOGETHER WITH THERMAL GROWTH OF THESE COLLOIDS LEADS TO A TRANSFORMATION  
FROM SPHERICAL TO ELLIPSOIDAL PARTICLES. GOOD AGREEMENT WAS OBTAINED  
BETWEEN THE EXPTL. AND CALCD. DICHROISM OF THE COLLOIDS.  
FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

Acc. Nr:  
**AP0052507**

Abstracting Service:  
**CHEMICAL ABST. 5-10**

Ref. Code:  
**4R0460**

*B*

101605t Electron-microscopic and optical study of the surfaces of amorphous polymer chips. Bezruk, L. M.; Lipatov, Yu. S.; Ivashchenko, V. K.; Lipatova, T. E.; Pasechnik, Yu. V. (Inst.

Khim. Vysokomol. Soedin., Kiev, USSR). Vysokomol. Soedin.,

Ser. B 1970, 12(1), 35-7 (Russ). Polyurethane rubber (I) samples were exposed to silent elec. discharge in O and obsd. by electron microscopy. Spherulite-like structures of 3 types appeared: hyperbolic, polygonal, and ellipsoidal. Other methods of sample prepn. for electron microscopy, x-ray diffraction, and birefringence failed to reveal any signs of spherulite-like structures. Anal. of the results showed that the spherulite-like structures are due to inhomogenities on the I surface and not to the existence of spherulites; I have a globular amorphous structure. CPJR

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REEL/FRAME  
**19821148**

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1/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--RESULTS OF MEASUREMENTS OF CHARGED PARTICLE CONCENTRATION IN THE  
EARTH'S PLASMA SHELL, CONDUCTED ON BOARD ELEKTRON 2 AND ELEKTRON 4

AUTHOR--BEZRUKIKH, V.V.

*B*

COUNTRY OF INFO--USSR, UNITED STATES

SOURCE--KOSMICHESKIE ISSLEDOVANIYA, VOL. 8, MAR.-APR. 1970, P. 273-277

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY, SPACE TECHNOLOGY

TOPIC TAGS--CHARGED PARTICLE, GEOMAGNETIC LATITUDE, ION CONCENTRATION,  
GEOMAGNETIC ACTIVITY/(U)ELECTRON 2 SATELLITE, (U)ELECTRON 4 SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0201

STEP NO--UR/0293/70/008/000/0273/0277

CIRC ACCESSION NO--AT0108525

UNCLASSIFIED

2/2 020  
CIRC ACCESSION NO--AT0108525

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF SATELLITE MEASUREMENTS OF ION CONCENTRATIONS IN THE EARTH'S PLASMA SHELL DURING MORNING AND EVENING HOURS LOCAL TIME, AT GEOMAGNETIC LATITUDES BELOW 56 DEG. IT IS SHOWN THAT THE LARGEST PART OF THE MEASURED ION CONCENTRATION DISTRIBUTIONS HAS A SHARP CHANGE AT HEIGHTS DEPENDENT ON THE GEOMAGNETIC ACTIVITY.

UNCLASSIFIED

USSR

UDC 621.317.799:621.582.2

YEFREM'OV, I.S., ZAGAINOV, N.A., NIKOL'SKIY, I.K., BEZRUKOV, G.I., SLEPTSOV, M.A.,  
CHIRVINSKIY, V.M. [Mosk. energ.in-t--Moscow Power Institute]

"Method Of Continuous Measurement Of The Temperature Cf A P-N Junction Cf A  
Rectifier"

USSR Author's Certificate No 275256, filed 26 July 67, published 22 Oct 70  
(from RZh--Elektronika i vyez primeneniye, No 4, April 1971, Abstract No 43598P)

Translation: A method is proposed for continuous measurement of the temperature of the p-n junction of a rectifier, mainly under operational conditions. With the object of increasing the utilization factor of the rectifier power, the temperature of the rectifier case and the current of the loaded rectifier are measured simultaneously, proportional conversions of the parameters measured into uniform signals are performed, these signals are summed and by the magnitude of these sums the temperature of the rectifier's p-n junction is judged.

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USSR

UDC 546.26-126+549.07+549.211

BEZRUKOV, G. N., BUTUZOV, V. P., LAPTEV, V. A., All-Union Scientific Research Institute for the Synthesis of Mineral Raw Materials, Aleksandrov, Vladimir-skaya Oblast

"The Growth Kinetics of Artificial Diamond Crystals of Different Habitus Types"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1088-1091

**Abstract:** In research on the growth kinetics of artificial diamond crystals of different habitus types, the following conclusions were obtained. The thermodynamic conditions of crystallization, and particularly the temperature regimes, determine the predominant development of diamond crystals of a strictly defined habitus. The number of crystallization centers is also a function of the thermodynamic conditions, the determining parameter being pressure. The duration of crystallization substantially affects the rate of origination of diamond crystallization centers, which then form various habitus types, only during the first 120 seconds. Subsequently, during the investigated time interval, the rate of origination of the centers is practically constant. The rate of crystal growth of all the habitus types de-

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USSR

BEZRUKOV, G. N. et al, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71,  
pp 1088-1091

pends essentially upon duration of the synthesis also only in the first stage (up to 30 seconds). In the course of time this relationship is relaxed, expressing a very smooth decrease of the growth rates. 4 figures, 1 reference.

2/2

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USSR

UDC 546.26-126+549.07:549.211

BEZRUKOV, G. N., BUTUZOV, V. P., and LAPTEV, V. A., All-Union Scientific Research Institute of Mineral Raw Material Synthesis, Aleksandrov Vladimirskoy Oblast

"Growth Kinetics of Synthetic Diamond Crystals of Differing Habit Types"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

**Abstract:** A study was made of the pressure and temperature relationships in the growing of diamond crystals from which five morphological habit types were distinguished: I -- cubes, II -- cubes with truncated faces of an octahedron, III -- an intermediate form between a cube and octahedron -- a cubic octahedron, IV -- an octahedron with truncated cube faces and V -- octahedron. By experimentation it was established that nucleation of crystals occurs for the entire crystallization time interval, and that high temperatures and pressures facilitate the formation of twins and concretions the formation of which occurred at increased growth rates.

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USSR

BEZRUKOV, G. N., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971,  
pp 1088-1091

At the minimum possible temperature for a given pressure type II crystals are formed in most cases with some formation of type I habits. A prevalent formation of type III crystals occurs at comparatively high parameters. Habit types IV and V form at even higher temperatures. By plotting the number of crystallization centers against temperature  $m$ ,  $m+110^\circ$ ,  $m+220^\circ$  and  $m+310^\circ$  C and number of centers against pressures  $n$ ,  $n+3$ , and  $n+6$  kbars the authors were able to determine the maximum number of crystallization centers formed for each crystal habit type before a smooth drop starts. For habit types III, two centers of crystallization form four at  $m+110^\circ$ ; one crystallization center for habit type IV forms a maximum of two centers at  $m+220^\circ$ ; and for one crystallization center for type V there are about four centers formed. On the other hand if a multitude of crystallization centers initially form then the maximum number of centers resulting increases quite rapidly. For example, 28 crystallization centers of type V formed approximately 266 centers at  $m+220^\circ$ . The data mentioned here for the high number of crystallization centers formed was for a pressure of  $n+6$  kbars. The same evidence was observed for increasing pressure while holding temperature constant, with extreme being noted for high temperatures and high pressures.

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USSR

BEZRUKOV, G. N., et al., *Doklady Akademii Nauk SSSR*, Vol 200, No 5, 1971,  
pp 1088-1091

In plotting growth rate against time it was noted that maximum growth rate occurs at the 15 second mark for a pressure of  $n+3$  kbars and temperature of  $m+110$  C (excluding type I). The maximum growth rates were (in mm/sec): 0.06 for type III, 0.052 for IV, 0.042 for type V and 0.03 for type II.

From this experiment the authors made the following conclusions: 1) thermodynamic conditions of crystallization and especially temperature modes determine the prevalent development of diamond crystals of a strictly specified habit; 2) the number of crystallization centers is a function of the thermodynamic conditions whereupon the determining factor is pressure; 3) duration of crystallization time renders a substantial effect on the rate of crystallization center formation which then forms different habit types only in the course of the first 120 seconds. Furthermore, in the course of the investigated time interval the rate of center formation is practically unchanged; 4) growth rate of crystals of all the habit types also depends essentially on the synthesis time only in the first stage (up to 30 seconds). With the passage of time this relationship deteriorates, reflecting a very smooth decrease in growth rates. Four figures, 1 bibliographical reference.

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USSR

*B*

UDC 621.315.592

BEZRIUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.V., LITVIN, Yu.A., and SMIRNOV, L.S.

"Electrical and Optical Characteristics of Artificial Semiconductor Boron-Doped Diamonds"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

**Abstract:** The artificial diamond specimens were doped by boron in their growth process, and had a carrier concentration, determined by the Hall effect at room temperature, within the limits of  $5 \cdot 10^{16}$  to  $10^{18} \text{ cm}^{-3}$ , corresponding to a boron content of 0.25 to 0.25% by weight. With the variation in concentration of the boron the color of the crystals changed from blue to black. The crystals used in the measurements were cubic, with an edge of 0.5 to 1.5 mm, or in octahedral form. The following characteristics were investigated: type of conductivity, from thermochemical measurements; the resistance as a function of the temperature in the interval of 300-800° K, in which the two-contact method of

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USSR

BEZRUKOV, G.N., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970,  
pp 693-696

electrical measurement was used, with the electrodes made of silver or graphite; radiation recombination spectrum at temperatures of 300 and 90° K with electron pulse excitation, and its dependence on the excitation density. In this latter, the electron energy was 200 kev with a pulse duration of  $0.3 \cdot 10^{-6}$  seconds. Also investigated was the duration of the afterglow after the excitation pulse stopped, and its dependence on the wavelength. The authors found these diamond semiconductors to be of the p type.

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172 019

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--MINERAL FORMATION IN KIMBERLITES AT THE EXPERIMENTAL CONDITIONS OF  
HIGH PRESSURES AND TEMPERATURES -U-  
AUTHOR--DAVYDCHENKO, A.G., LISITSYNA, YE.YE., BEZRUKOV, G.N., GOROKHOV,  
S.S.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 1 (121), PP 129-135

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MINERAL FORMATION ANALYSIS, HIGH TEMPERATURE, HIGH PRESSURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0880

STEP NO--UR/0210/70/000/001/0129/0135

CIRC ACCESSION NO--APO104316

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70  
CIRC ACCESSION NO--AP0104316

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KIMBERLITE FROM THE MIR PIPE WAS  
UNDERGONE BY THE EFFECT OF HIGH TEMPERATURES (UP TO 1400-1500DEGREESC)  
AT THE PRESSURE 10 AND 25 KBAR IN THE WATER PRESENCE. THE FORSTERITE,  
DIOPSIDE, CALCITE, TITANOMAGNETITE ARE ESTABLISHED TO BE FORMED AT THE  
TEMPERATURES BELOW THE MELTING TEMPERATURE, AT 25 KBAR PRESSURE PYROPE  
RECRYSTALLIZATION IS POSSIBLE. THE COOLING OF KIMBERLITE MELT LEAD TO  
FORSTERITE AND GLASS FORMATION. BY THE LOCATION OF PYROFILLITE INTO  
REACTIONAL CAMERA AT THE PRESSURE OF 25 KBAR AND TEMPERATURE ABOVE  
800-900DEGREESC ALMOST FULL RECRYSTALLIZATION OF SOURCE MATERIAL INTO  
GARNET TAKES PLACE, THE GARNET IS CLOSE TO PYROPE IN COMPOSITION.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--PHYSICAL PROPERTIES OF NITROGEN CONTAINING SYNTHETIC DIAMONDS -U-

AUTHOR--(03)-NIKITIN, A.V., KLYENTOVA, G.P., BEZRUKOV, G.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2) 379-1

DATE PUBLISHED-----70

*B*

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, NITROGEN, DIAMOND, CHEMICAL  
SYNTHESIS, X RAY DIFFRACTION ANALYSIS, CRYSTAL LATTICE STRUCTURE,  
CRYSTAL IMPURITY, ALUMINUM, BORON, LUMINESCENCE, THERMO EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0547

STEP NO--UR/0363/70/006/002/0370/0371

CIRC ACCESSION NO--AP0105532

UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105532

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ARE PRESENTED CONCERNING CERTAIN PHYS. PROPERTIES OF SYNTHETIC DIAMONDS SYNTHESIZED IN A MEDIUM OF EXCESS N SUB2. LAUE AND POWDER X RAY DIFFRACTION METHODS WERE USED TO STUDY THE CRYSTALS PREPD. THE LATTICE PARAMETER OF THE DOPED CRYSTALS WAS ALPHA EQUAL 3.5680 ANGSTROM, WHICH DIFFERS SOMEWHAT FROM THAT FOUND BY OTHER INVESTIGATORS AND FOR OTHER SYNTHETIC DIAMOND CRYSTALS. THERMOSCINTILLATION CURVES WERE ALSO TAKEN FOR THESE SAMPLES, AT 20-400DEGREES, THE HEATING RATE BEING 1DEGREE-SEC. THE PREVIOUS ASSUMPTION THAT N TAKES PART IN THE FORMATION OF DEFECTS RESPONSIBLE FOR THERMOSCINTILLATION HAS BEEN CONFIRMED. THREE VERY INTENSE AND HIGHLY DISCERNIBLE PEAKS WERE OBSD., AT 100-115, 150, AND 260DEGREES, WITH A 4TH MAX. AT 215DEGREES. THE CALCD. ACTIVATION ENERGIES FOR THESE WERE 0.37, 0.53, 0.61, AND 0.84 EV, RESP. INTRODUCING B AND AL IMPURITIES INTO THE DIAMOND LATTICE UNDER CERTAIN CONDITIONS ALSO INCREASES THE INTENSITY OF THE CORRESPONDING THERMOLUMINESCENCE PEAKS.

UNCLASSIFIED

USSR

B

UDC: 546.26--162

NIKITIN, A. V., KLIYENTOVA, G. P., and BEZRUKOV, G. N., All-Union Scientific Research Institute for the Synthesis of Mineral Ore

"Certain Physical Properties of Nitrogen-Doped Artificial Diamonds"

Moscow, Neorganicheskiye Materialy, Vol 6, No 2, Feb 70, pp 370-371

**Abstract:** Despite its scientific and practical importance, there is relatively little information on the effect of nitrogen on the properties of artificial diamonds. This paper presents preliminary data on some of the properties of man-made diamonds synthesized in a nitrogen-rich medium. The specimens were synthesized by the widely employed method of high temperatures and pressures. Nitrogen was added to carbon dissolving metals in amounts of 5 to 20% in the form of  $Mn_4N$  synthesized for this purpose by a conventional method. The diamond crystals obtained in this manner actually contained higher concentrations of the nitrogen impurity (by two or three orders of magnitude). Their color was densely-green (transparent crystals) and black (non-transparent crystals). About 20% of the crystals with the added nitrogen impurity were twins. Use was made of Laue diffraction patterns and the powder method to analyze the crystals. Extrareflections were observed in the green crystals, an anomaly related to crystal lattice defects caused by foreign atoms, particularly nitrogen and metal carbides.

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USSR

NIKITIN, A. V., et al., Neorganicheskiye Materialy, Vol 6, No 3, Feb 70,  
pp 370-371

thermoluminescence curve shown in the original article indicates new peaks. Earlier research indicates an increased luminescence in artificial diamonds with addition of boron and aluminum. The physical and morphological characteristics of diamonds grown in a nitrogen medium are readily explained if the assumption is made of the formation of carbon compounds with  $M_mC_nN_p$ -type metals. The formation and decomposition of such intermediate compounds considerably affect the kinetics of crystallization and properties of obtained crystals.

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1/2 038 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CERTAIN ELECTRICAL AND OPTICAL PROPERTIES OF ARTIFICIAL BORON-DOPED  
SEMICONDUCTOR DIAMONDS -U-  
AUTHOR--(05)-BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO,  
L.F., LITVIN, YU.A.  
COUNTRY OF INFO--USSR

B

SOURCE--FIZIKA I TEKHNIKA POLUPROVOODNIKOV, VOL. 4, APR. 1970, P 693-696.

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC PROPERTY, OPTIC PROPERTY, SEMICONDUCTOR R AND D,  
DIAMOND, BORON, LUMINESCENCE SPECTRUM, NITROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0068

STEP NO--UR/0449/70/004/000/0693/0696

CIRC ACCESSION NO--AP0125903  
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE TEMPERATURE DEPENDENCE OF THE RESISTANCE OF ARTIFICIAL BORON DOPEO DIAMOND CRYSTALS OF VARIOUS CONCENTRATION, DURING THE GROWTH PROCESS, AT TEMPERATURES RANGING FROM 300 TO 800 DEG K. THE TYPE OF CONDUCTIVITY OF THE CRYSTALS, AND THE LUMINESCENCE SPECTRA FOR FAST ELECTRON EXCITATION AT TEMPERATURES BETWEEN 90 AND 300 DEG K ARE STUDIED IN THE RANGE FROM 3000 TO 10,000 A. IT IS FOUND THAT SUCH CRYSTALS HAVE A P TYPE CONDUCTIVITY WITH A BORON ACCEPTOR LEVEL OF 0.35 EV, AND THAT THE CRYSTALS ARE COMPENSATED BY A DEEP SEATED NITROGEN LEVEL (3.6 EV) DETERMINED FROM THE LUMINESCENCE SPECTRUM OF THE CRYSTALS.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT FIZIKI POLUPROVODNIKOV, NOVOSIBIRST, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INTERACTION OF MANGANESE (II) WITH DECAVANADATE IONS IN THE  
PRESENCE OF LITHIUM, SODIUM, AND POTASSIUM CATIONS -U-  
AUTHOR--(03)-BULYGINA, V.N., BEZRUKOV, I.YA., ZOLOTAVIN, V.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHM. 1970, 15(2), 435-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, TERNARY FLUID SYSTEM, CHLORATE, VANADATE,  
LITHIUM COMPOUND, SODIUM COMPOUND, POTASSIUM COMPOUND, CRYSTALLIZATION,  
SOLUTION CONCENTRATION, SOLUTION ACIDITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/0773

STEP NO--UR/0078/70/015/002/0435/0438

CIRC ACCESSION NO--AP0104219

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104219

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NA SUB6 V SUB10 O SUB28, MN(CLO SUB4) SUB2 H SUB2 O SYSTEM WAS STUDIED BY THE METHOD OF CONTINUOUS CHANGE OF CONCNS. WHEN IONIC STRENGTH OF THE SYSTEM WAS ADJUSTED WITH NACLO SUB4 TO 1.0 AND THE H POSITIVE-V CONCN. RATIO WAS SIMILAR TO 0.4, LARGE SHINY ORANGE CRYSTALS OF NA SUB4 MNV SUB10 O SUB28 .NH SUB2 O (I) SEPD. THE SYSTEM I-H SUB2 O IS VERY UNSTABLE AND WHEN KEPT FOR 2-3 DAYS AT PH 3.5-5.5 I DISPROPORTIONATED. BOTH K SUB4 MNV SUB10 O SUB28 .NH SUB2 O AND K SUB2 MN SUB2 V SUB10 O SUB28 .NH SUB2 O WHEN THE ANALOGOUS SYSTEM OF K SUB6 V SUB10 O SUB28 WAS KEPT AT A K-MN CONCN. RATIO OF 10-19 AND AT PH 3: AT PH 5.5 AND A HPOSITIVE-V CONCN. RATIO IS GREATER THAN 0.4, THE ANALOGOUS LI SUB6 V SUB10 O SUB28 SYSTEM FORMED ONLY 1 COMPD. HAVING A V-MN CONCN. RATIO OF 3.33.

UNCLASSIFIED

1/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--PREPARATION OF SLIGHTLY SOLUBLE BINARY DECAVANADATES OF NICKEL AND  
ALKALI METALS CESIUM, RUBIDIUM, AND POTASSIUM -U-

AUTHOR--(03)-ELFIMOV, V.I., BEZRUKOV, I.YA., ZOLOTAYIN, V.L.

COUNTRY OF INFO--USSR

B

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 607-8

DATE PUBLISHED-----70

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SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKALI METAL, NICKEL COMPOUND, VANADATE, CESIUM COMPOUND,  
RUBIDIUM COMPOUND, POTASSIUM COMPOUND, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0904

STEP NO--UR/0363/70/006/003/0607/0608

CIRC ACCESSION NO--AP0118073

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118073

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF DECAVANADATE AND  $(Ni(H_{20})_{18}O_6)_2$  POSITIVE IN THE PRESENCE OF K PRIME POSITIVE, RB PRIME POSITIVE, AND CS PRIME POSITIVE IN SLIGHTLY ACIDIC SOLNS. WAS STUDIED. FOR H PRIME POSITIVE- $V_0$  SUB3 PRIME NEGATIVE RATIOS OF 0.07-0.6 (PH 6.3-2.6), A COMPO. OF CONST. COMPN. FORMS WITH THE FORMULA  $K_{20}Ni_{18}O_6V_0$  SUB10 O SUB28.15H SUB2 O. ITS COMPN. DOES NOT DEPEND ON THE RATIO OF V, NI, AND K IN THE STARTING SOLNS. FROM LI CONTG. AQ. SOLNS. IT WAS NOT POSSIBLE TO OBTAIN THE DECAVANADATES EVEN AT C SUBLIV03 EQUALS 0.6 M AND THE STARTING RATIOS OF V-NI EQUALS 0.5-35, LI-V EQUALS 1-7, AND H PRIME POSITIVE- $V_0$  SUB3 PRIME NEGATIVE EQUALS 0-0.6. HOWEVER, ADDING ETOH PPTD.  $Ni_{18}O_6V_0$  SUB100 SUB28.22H SUB2 O, THE COMPN. OF WHICH DOES NOT DEPEND ON THE STARTING V-NI AND LI-NI RATIOS OR ETOH CONCN. DURING THE TITRN. OF A SOLN. OF NORMAL NI DECAVANADATE BY A SOLN. OF CSNO SUB3 SLIGHTLY SOL. COMPO.,  $CS_2O_3Ni_{18}O_6V_0$  SUB10 O SUB28.15H SUB2 O, FORMS, WHICH DOES NOT DEPEND ON THE STARTING V-NI AND CS-NI RATIOS. SIMILAR COMPDs. FORM IN CASE OF RB AND K NITRATE SALTS, BUT WITH SLIGHTLY HIGHER SOLY. FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--INTERACTION OF MANGANESE(II) IONS WITH VANADIUM(V) IN AQUEOUS  
SOLUTIONS IN THE PRESENCE OF VARYING CONCENTRATIONS OF H PRIME POSITIVE  
AUTHOR--(03)-ZOLOTAVIN, V.L., BULYGINA, V.N., BEZRUKOV, I.YA.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2) 429-34

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLUTION CONCENTRATION, HYDROGEN ION CONCENTRATION, AQUEOUS  
SOLUTION, MANGANESE COMPOUND, HYDROXIDE, VANADATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0053832

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF MN(II) WITH V(V) IN  
AQ. SOLN. WAS STUDIED AT PH 2-12 AT VARIOUS INITIAL CONCNS. OF THE IONS.  
MN(VO SUB3) SUB2.4H SUB2 O (I), MN(OH)VO SUB3. 2H SUB2 O, (MNUH) SUB4 V  
SUB2 O SUB7.4H SUB2 O, AND (MNOH) SUB3 VO SUB4.3H SUB2 O SEP. AT WEAKLY  
ACIDIC AND BASIC PH. EFFECT OF IONIC STRENGTH ON THE SOLY. OF I IS  
TABULATED.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CALCULATING PHASE AND TIME CHARACTERISTICS OF MINIMAL PHASE LINEAR  
TELEVISION SYSTEMS -U-  
AUTHOR--(03)-KHRONCY, B.P., BEZRUKOV, V.N., BALOGANOV, V.G.

COUNTRY OF INFO--USSR

B

SOURCE--MUSICA, RADIOTEKHNIKA, NO 2, 1970, PP 11-17

DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--TV SYSTEM, PHASE MEASUREMENT, LINEAR SYSTEM, FREQUENCY  
CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/1286

STEP NO--UR/0108/70/000/002/0011/0017

CIRC ACCESSION NO--APO123245

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

CIRC ACCESSION NO--AP0123245

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL APPROACH IS PROPOSED FOR CALCULATING THE PHASE AND TIME CHARACTERISTICS IN MINIMAL PHASE TYPE, LINEAR TELEVISION SYSTEMS ACCORDING TO FREQUENCY CHARACTERISTIC SHAPE. RELATIONSHIPS ARE OBTAINED WHICH MAKE IT POSSIBLE TO CALCULATE THE FREQUENCY CHARACTERISTICS WITH SUFFICIENT ACCURACY FOR PRACTICAL APPLICATION. THEORETICAL AND EXPERIMENTAL DATA ARE COMPARED.

UNCLASSIFIED

USSR

UDC: 621.372.061

BALGBANOV, V. G., KHROMOV, B. P., BEZRUKOV, V. N.

"Dependence of Reference Level on Signal/Noise Ratio"

Tr. Mosk. elektrotekhn. in-ta svazi (Works of the Moscow Electrical Engineering Institute of Communications), 1970, vyp., 108-113 (from ZZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A88)

Translation: A procedure is known for determining the resolution of a TV system from the resultant aperture characteristic "from light to light" with the aid of the reference level. It is shown that the reference level for small details depends on the form of the frequency characteristic of the kinescope. Introducing aperture characteristics has no effect on the reference level only when kinescopes are used which introduce insignificant frequency distortions. Curves are given which can be used to calculate the visual resolution. Two illustrations, bibliography of three titles. L. S.

USSR

Television  
UDC: 621.397.001

BALOBANOV, V. G., KHROMOV, B. P., BEZRUKOV, V. N.

"Determining the Limiting Resolution of a Television System from the resultant Aperture Characteristic 'From Light to Light'"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrical Engineering Institute of Communications), 1970, vyp., pp 118-123 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G81)

Translation: It is shown that the threshold reference level from which resolution is read out is not constant, but rather depends on the angular dimensions of the details under examination and the conditions of observation. Graphs are plotted for the reference level as a function of the angular dimensions and the brightness of the background assuming that the signal-to-noise ratio is equal to infinity, and the relative viewing distance is equal to four screen heights. L. M.

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USSR

UDC: 621.397.2

BEZRUKOV, V. N., BALOBANOV, V. G.

"On Time Methods of Transmitting Two Television Programs in a Standard Television Channel"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrical Engineering Institute of Communications), 1970, vyp., pp 113-117 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G125)

Translation: Among known methods of transmitting two TV programs in a standard TV channel, those of greatest interest are time methods which do not affect existing scanning standards, do not require extensive modification of the transmitting equipment, and are designed for use with standard TV receivers. Among the time methods based on alternation of two transmitting signals, those in which the signals of the two TV programs change at the frequency of the fields or frames have advantages. In each of these methods, the effect of flickering can be suppressed by using devices which store the duration of the field or frame. The required delay of video signals can be achieved in devices of this type: by cascading ultrasonic delay lines which delay the video signals by a time equal to the duration of a scanning line; by means of magnetic information media; by 1/2

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USSR

BEZRUKOV, V. N., BALOBANOV, V. G., Te. Mosk. elektrotekhn. in-ta svyazi,  
1970, vyp., pp 113-117

recording the video signals on the semiconductor target of a vidicon with  
subsequent readout of the potential relief. It is noted that the present  
level of technology in television is sufficient to assure transmission of  
two TV programs in a single standard TV channel in the near future. M. T.

2/2

USSR

UDC 669.295:620.176.251.1:620.186.1

D'YAKOVA, M. A., BOGACHEV, I. N., BEZRUKOVA, A. K., and SELITSKAYA, S. I.,  
Ural Polytechnical Institute

"Phase Conversions of Titanium Alloys at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970,  
pp 36-38

**Abstract:** A study was made of the decomposition of the unstable  $\beta$ -solid solution of titanium alloys during cooling and plastic deformation at low temperatures. Two alloys were studied: one with 3.7% Al, 7.5% Mo (alloy A) with a temperature of beginning of martensite conversion of +50°C, and the other with a high content of the transitional elements (alloy B) with a temperature of beginning of martensite conversion of below -196°C. Exposure to cold increases the strength properties of both types of alloys. Plastic deformation at low temperatures results in the formation of deformation martensite and increases the yield point and ultimate strength.

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Acc. Nr.:

AP0046634

Abstracting Service:

CHEMICAL ABST.

4-70

Ref. Code:

4R 0131

*B*

82444w Large-scale magnesite and chromium magnesite refractories for open-hearth furnaces. Cherepov, P. V.; Simonov, K. V.; Koren'kov, V. N.; Bezryadnov, A. A. (USSR).

Ogneupory 1970, 35(1), 14-15 (Russ). The attempt was made to substitute hitherto used refractory bricks 230 X 115 X 65 mm for bricks of size 300 X 150 X 65 mm. The performance of the press is increased by 4-5 ton/day. Also, the efficiency of bricklayers building blast furnaces with larger bricks rises 10-15%. In addn., with larger bricks the no. of crannies in brick-work is diminished in the horizontal direction which improves the servicability of the brick-work.

J. Jindra

*EB*

REEL/FRAME

13781946

18

USSR

UDC: 621.396.677

BEZUGLYY, A. V.

"Diffraction of an E-Polarized Electromagnetic Wave by a Grating of Annular Cylinders"

Radiotekhnika, Resp. mezhved. nauchn.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 13, pp 80-90 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B6)

Translation: The author solves the problem of diffraction of a plane E-polarized wave by a grating of annular cylinders. A method is used which permits solving the problem for diffraction of a plane electromagnetic wave by an infinite grating of nonabsorbent cylinders if a solution is known for the problem of scattering of a plane wave by a single cylinder. Analytical expressions are found in the long-wave approximation for the coefficient of reflection and origin. Two illustrations, bibliography of six titles.

Resumé.

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USSR

UDC: 621.396.677

BEZUGLYY, A. V.

"Diffraction of an H-Polarized Electromagnetic Wave by a Grating of Annular Cylinders"

Radiotekhnika. Resr. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 13, pp 91-96 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B7)

Translation: The author solves the problem of scattering of a plane electromagnetic wave by a grating made up of an infinite periodic sequence of annular cylinders. The solution is found in the form of a functional equation for the coefficient of the scattering amplitude of an annular cylinder in the grating in terms of the coefficient of the scattering amplitude of a single cylinder. The equation can be used to find the scattering amplitude of an annular cylinder in the grating (and thus to determine the scattered field in the long-range zone) if the Fourier coefficients of the scattering amplitude of a single annular cylinder are known. One illustration, bibliography of six titles.

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USSR

UDC 632.954:631.461

BEZUGLOV, V. G., MINENKO, A. K., and SHELESTOV, YE. P., Scientific Research Institute of the Agriculture of Central Regions of Non-Chernozem Zone

"The Effect of Dicamba, Tordon 22K, and Lumetone on the Weeds and Soil Microflora"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 11 (121), 1973, pp 54-56

Abstract: The effect of herbicides on the soil microflora depends to a large extent on the quantity of rainfall prior to the introduction of the agents. With excessive rainfall (150% of the normal fallout) the herbicides stimulated development of microorganisms, while with rain deficiency -- 80% of the normal level -- they depressed them somewhat as shown by a decreased number of microorganisms requiring mineral nitrogen, nitrifiers and denitrifiers. In a very dry year (1971) tordon 22K (0.07 kg per hectare) was the most active agent against most of the physiological microorganisms; it weakened the nitrification activity of the soil and development of bacteria participating in phosphorus mineralization. Dicamba (0.12 kg per hectare) appeared to be non-toxic to most of soil microorganisms, but regardless of climatic conditions inhibited somewhat the nitrification process. In the lumetone treated soil (4.0 kg per hectare) after the harvest of barley, the number of fungi was lowered slightly.

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UDC 632.95

USSR

OVSISHCHER, M. R., REZUGLYY, S. F. and ZHESTKOVA, T. Ya.

"Thermomechanical Studies on Pesticides and Wettable Powders Based on Them"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 151-158 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N516 by I. Pil'menshteyn)

Translation: Studies on the thermomechanical properties of pesticides (P) and mixtures thereof with fillers. Introduction of fillers into P elevates the pour point: the higher the absorptivity, the greater the percentage of the filler in a mixture with P. The P are provisionally broken down into 3 groups according to the position of the pour point interval. Each group requires specific fillers and special methods of treatment.

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USSR

UDC 632.95

GAR, K. A., UNTERBERGER, V. K., BEZUELIY, S. F., LUKANINA, V. S., AND VOLKOV, V. N., All-Union Scientific Studies Institute of Chemical Compounds for the Protection of Plants

"insecticide Formula"

Author's Certificate No 213452, filed 4 Apr 66, published 2 Jun 72 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8N480P by T. A. Belyayeva)

Translation: The insecticide trichloroforl-5 contains from 4-15% trichlorometa-phos-3 (I), 85-96% high purity unfiltered mineral oil, and 0-6% of the emulsifier OP-4. For example, 92% of the light unfiltered oil having an unsulfonylated residue of 93%, 5% of (I), and 3% OP-4. The order of the relative effectiveness of the oleophoses is as follows -- olemetaphos, trichlorol-5, and preparation No 30 -- relative to the wintering phase of the California scale insect. Trichlorol -5 in a 2% concentration showed a mortality of 92.4% of the pests.

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USSR

UDC 632.95

TROPIN, B. P., BEZUGLYY, S. E., BOROVKOVA, L. N., COLYSHIN, N. M., ZAIKIN, B. A., KRASNOVA, M. V., and MIKHULYA, S. A.

"Method to Decrease Evaporation of Pesticide Droplets"

USSR Author's Certificate No 33913, filed 13 Oct 69, published 6 May 72  
(from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II), 1973,  
Abstract No 1N467P by T. A. Belyayeva)

Translation: In order to decrease evaporation of pesticide droplets during aerial application (from airplane), 0.1-5% of antievaporating agent is added to pesticide. A mixture consisting of high-molecular weight synthetic aliphatic alcohol fractions C<sub>10</sub> - C<sub>16</sub>, C<sub>10</sub> - C<sub>18</sub>, C<sub>10</sub> - C<sub>20</sub>, nonionogenic surface-active substances (OP-4, OP-7, OP-10) and calcium dodecylbenzenesulfonate can be used as antievaporating agent. Example. 85-93% primary aliphatic alcohols C<sub>10</sub> - C<sub>16</sub> or C<sub>10</sub> - C<sub>18</sub>, 7-15% OP-7 or OP-10 are mixed to prepare the antievaporating agent (AE). One part of antievaporating agent is emulsified with 2-3 parts of water, the obtained emulsion is mixed with a suspensoid containing 8 parts of finely-dispersed wetting agent of copper oxychloride (90% strength), and water is added to make 100 parts. The emulsion-suspensoid prepared in this manner is used for aerial spraying of 1/2

UDC 632.95

USSR

ANDREYEVA, YE. I., MEL'NIKOV, N. N., PRONCHENKO, T. S., SKALOUBOVA, A. V.,  
MATVEYEVA, G. N., OVSISHCHER, M. R., BEZUGLYY, S. F., and UDINOV, N. T.

"Phenothiuran Seed Disinfectant"

V sb. Khim. Sredstva zashchity rast. (Chemical Agents for Plant Protection --  
collection of works), vyp 1, Moscow, 1970, pp 135-145 (RZh-Khimiya, No 11,  
Jun 72, Abstract No 11N429)

Translation: The combination disinfectant phenothiuran (40% tetramethyl-  
thiuran disulfide, 10% copper trichlorophenoxyde, and 20%  $\gamma$ -hexachlorocyclo-  
hexane; heptachlor or some other organochlorine insecticide may be substituted  
for the last component) has been tested and is recommended for treating  
cotton seeds (10-12 kg/ton) and the seeds of legume grain crops (3-4 kg/ton).  
Phenothiuran may also be used to treat seed corn, tree crop seeds, and the  
planting material for flowers, shrubs and trees. Phenothiuran is moderately  
toxic and is recommended as a substitute for organomercury disinfectants.

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USSR

UDC 632.95

BEZUGLYY, S. F., KALASHNIKOVA, V. N., and MIKHEYEVA, S. YA.

"Emulsion Concentrates of Phosphamide and Their Chemical Stability"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 276-280 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N472 by I. Pil'menshteyn)

Translation: A study was made of the chemical stability of 40% emulsifiable concentrates (EC) of phosphamide based on various solvents during storage at 1-5, 20-25 and 35°. The most stable is an EC containing cyclohexanone and OP-7. In 15 months the decomposition of the phosphamide in such an EC was 1.87% at 1-5°, 3.67% at 35°, and 2.63% at 20-25° in 25 months and 20 days.

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UDC 632.95

USSR

SUPIN, G. S., BEZUGLYY, S. E., MAKAROVA, S. V., OVSISHCHER, M. R., KALASHNIKOV, V. N., MIKEEYeva, S. YA., and ZAKS, P. G.

"Mercurometric Volumetric Method of Determining Phthalophos (With Visual and Amperometric Endpoint)"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 81-83 (from RZh-Khimiya, No 11, Jun 72, Abstract No 114409)

Translation: A specimen containing phthalophos (I) is hydrolyzed in an alkaline medium, the resultant dimethyl dithiophosphate is volumetrically analyzed with 0.01 N  $Hg(NO_3)_2$  in the presence of a 1% alcohol solution of diphenylcarbazone until the pink color becomes lilac blue. Amperometric titration is done with a vibrating platinum electrode or a dropping mercury electrode relative to a saturated  $Hg_2Cl_2$  electrode. The sensitivity of amperometric titration is 0.06 mg of I, and that of the visual method is 0.6 mg of I.

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USSR

UDC 632.95

BEZUGLYY, S. F., OVSISHCHER, M. R., and ZHESTKOVA, T. YA.

"A Combination Method of Preparing Wettable Pesticide Powders"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 297-301 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N415)

Translation: On the basis of analysis of techniques for producing pesticides and wettable powders based on them, it is concluded that it would be feasible to combine a number of stages typical of synthesis of pesticides produced in the form of finely dispersed aqueous suspensions with stages of preparation of the wettable powders based on them. In this connection, the aqueous suspension of the pesticide is cleaned of impurities on filters or centrifuges, put into suspension once more, a surface active agent is added together with auxiliary substances, and also fillers where necessary, and the resultant suspension is then dried in spray driers or in fluidized bed driers. This results in more uniform distribution of the components and in a finely dispersed product which can be pulverized if necessary. Examples are presented of preparation of 80-86% wettable ziram powder, 75% wettable zineb powder and 80% wettable simazine powder.

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USSR

UDC 632.95

BEZUGLYY, S. F., and TROPIN, V. P.

"Wettability of Pesticide Powders, and a Method of Studying It"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 270-276 (from Rzh-Khimiya, No 11, Jun 72, Abstract No 11N414)

Translation: A method has been developed for determining the wettability of wettable powders. In order to determine wettability, a 2g powder sample, presifted through a screen with  $250\ \mu$  mesh, is placed on a hemispherical cup with counterweight, which is mounted on a 500 ml graduate. The time required for complete wetting after tipping the cup is determined. Determinations are done in distilled water at  $20^{\circ}\text{C}$ . Experimental data are presented on the wettability of a number of wettable powders of Soviet and foreign pesticides. It is shown by the example of 50% wettable simazine powder that wettability depends on the composition of the insecticide and its grain size.

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USSR

UDC 632.95

PIL'MENSHTEYN, I. D., BEZUGLYY, S. F., NESTEROVS, L. A., YAKOVLEVA, L. I.,  
and STONOV, L. D.

"Adhesion of Emulsions to Treated Surface"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 291-297 (from KZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N534 by I. Pil"menshteyn)

Translation: Factors affecting the adherence of emulsion drops of 2,4-D butyl ester to various substrates (paraffinized surface of a polished steel plate and the surface of a bean leaf) were estimated according to the flow-off angle ( $\alpha_{fl}$  -- the angle of inclination of the surface to the horizon at which a drop applied to that surface began to flow off). The method of correlation analysis shows that  $\alpha_{fl}$  is determined by wetting conditions for the drops of the treated surface.

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